

# THE AMERICAN JOURNAL OF OPHTHALMOLOGY.

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VOL. XXI.

JULY, 1904.

No. 7.

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## ORIGINAL ARTICLES.

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### A NEW MODIFICATION OF THE AUTHOR'S ANTERIOR CHAMBER IRRIGATOR.

By J. A. LIPPINCOTT, M D.

PITTSBURGH, PA.

THE modification consists in the addition of a convenient and effective shut-off designed to prevent the backward flow which may occur if the reservoir is allowed to drop lower than the tip. Reversal of the current would expose the interior of the rubber tube to the risk of contamination and thus necessitate re-boiling in case one or more operations remained to be done at the same sitting. If the shut-off be used before lowering the reservoir, backward flow is prevented and immediate re-boiling is not necessary; it suffices to pass the tip two or three times through the flame of a spirit lamp before proceeding to the next operation. If care is taken to run all the fluid off before lowering the reservoir, the shut-off is not required, in which case it may be left in the position shown in the drawing, viz., lying back against the handle. It should be left in this position when the instrument is not in use, as continuous pressure on the rubber impairs its resiliency.

The irrigator in its new form has a larger tip, permitting of a more generous stream than as formerly made, and the general finish is superior. In other respects it is unchanged. The advantages of this over other instruments which I have

seen are: 1st—Accuracy of manipulation—held like a pen-holder between the thumb and middle finger, every movement responds to the volition of the operator to the extent that his fingers do, which is all that can be expected. 2nd—Accuracy in estimating the force of the stream—by the height of the reservoir, the only exact method. 3rd—Absence of backward flow. Instruments of the *compte-gouttes* type are defective in all these respects.

The irrigating fluid which I have used for a number of years is normal salt solution, which, in the reservoir, should be somewhat above blood heat to allow for cooling in the rubber tube. The reservoir should be held at the height of



from eight to twelve inches above the tip. At the latter height the stream has considerable force.

As a rule, removal of the cortical matter remaining after the expulsion of the nucleus is effected by introducing the tip just within the lips of the wound and slowly moving it from one angle of the incision to the other while the stream continues to flow; but a much freer use of the instrument is sometimes needed, especially to remove cortical masses which adhere obstinately. These may be loosened by direct manipulation with the tip, which, if necessary, may be inserted behind the iris. I have never seen any regrettable results from such free use of the irrigator. Stroking of the cornea in the ordinary way may also help in rebellious cases, but this procedure is very rarely required.

The rubber tubing used in this irrigator is of the purest quality. To make sure, however, that no foreign substance is left in the tube, I am in the habit, before using the instrument for the first time, of rolling the tubing between my thumb and fingers along its whole length, allowing at the same time a large quantity of an alkaline solution (borax) to run through. Before the operating hour the irrigator is boiled along with other instruments in the alkaline solution, having been previously filled with the same fluid.

The experimental stage of irrigation in the operation for cataract is long since past. The value of the procedure is now pretty generally recognized. True, its progress towards general acceptance has not been startlingly rapid, but nevertheless it has been decided. Witness the contrast between the skeptical silence which followed my first paper, read before the American Ophthalmological Society in 1888, and the chorus of approval succeeding Dr. Reik's paper on the same subject at the last (1903) meeting of the same society. The claims made by McKeown, myself and other adherents of the method have been justified by the experience of a large number of operators. It has been demonstrated that (1) it removes cortical remains gently, promptly and effectively. (2) It is the best mode of removing the blood which occasionally appears in the anterior chamber after the incision and which obscures the subsequent steps of the operation. (3) It perfectly cleanses the lips of the wound, allowing accurate apposition and consequent rapidity of union. (4) In those cases in which from want of tone the cornea remains inverted after removal of the lens it frequently restores the corneal dome, thus placing the wound lips in proper contact, and at the same time permitting of an immediate estimate of the vision. (5) Owing to the more thorough cleansing of the eye it lessens the tendency to, and the density of, subsequent capsular opacity and thus makes secondary operation less frequently necessary. In addition, I am convinced that it lessens the frequency and the severity of post-operative inflammations of the uveal tract through the comparatively complete elimination of material favorable to germ development and through the speedy closure of the incision giving increased protection against the entrance of germs from the

conjunctival sac, and possibly also through the avoidance of whatever traumatism is involved in prolonged stroking of the cornea.

In perfecting the shut-off I have been materially aided by Mr. E. B. Meyrowitz, of New York, the maker of the instrument.

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### EYE-STRAIN AS A CAUSE OF MIGRAINE.

By W. A. SHOEMAKER, M.D.

ST. LOUIS, MO.

**M**IGRAINE is a neurosis, characterized by severe attacks of headache, usually unilateral, coming on in paroxysms which are frequently periodic. With the pain in the head are associated, generally nausea and vomiting, and sometimes ocular symptoms, as photophobia, blurring of vision, bright lights, scotoma scintillans, hemianopsia, and transient amblyopia. Since the time of Hypocrates, this train of symptoms, with many others which at times go with it, have been described by many writers both lay and medical; the former being chiefly persons who have been subject to attacks.

As to the pathology, Thos. M. Leszynsky, in the *Reference Handbook of the Medical Sciences*, Vol. IV, page 551, says: "The pathology is still obscure. The prevailing and most plausible theory is that the attacks are due to periodical discharges of nerve force originating in the cerebral cortex or in the sensory centers, involving principally the intracranial branches of the trigeminus and the pneumogastric nerves. According to a recent 'mechanical' theory, the attack is produced by an acute transient closure of the foramen of Munro and a consecutive swelling of the brain (Spitzer)."

The assigned causes of this disease have been as numerous as the remedies which have been given for the relief of its distressing symptoms. There can be no doubt, however, but that heredity plays a very important role. It is more commonly direct than in almost any other neurosis, and is more likely to be transmitted by or through the mother. Females are more frequently affected than males. It begins early in life, some cases as early as the fifth or sixth year. Church

and Peterson say that thirty per cent. of the cases begin between the fifth and tenth years of age. This is probably too high a percentage, but the majority of cases begin with puberty or shortly thereafter. Among the many causes of the attacks mentioned by writers in text-books, are indigestion and intestinal autotoxæmia, lithæmia, constipation, errors in diet, mental overwork, anxiety, excessive fatigue or exhaustion from any cause, menstruation, emotional excitement, dental caries, and naso-pharyngeal diseases. Eye-strain is also given as one of the so-called reflex causes, by many of the writers, but very few, if any of them, give it the attention which I think it should receive. Barthalow, A. A. Stevens, Taylor, Anders and Osler merely refer to it as a possible cause in some cases. H. C. Hood, in *Pepper's System of Practice*, gives it more space. In discussing migraine, he says: "Peripheral irritation, such as eye-strain, may greatly aggravate the disorder and must be carefully prevented." Church and Peterson say: "The cases beginning in early childhood very frequently follow the first systematic use of the eyes for near vision, as in school work. *Eye-strain*, arising from accommodative or muscular asthenopia, is certainly competent to excite migrainous attacks in those predisposed." Fuchs and Noyes make no mention of it. Chas. A. Oliver, in *Norris and Oliver's System of Diseases of the Eye*, says: "In many cases migraine has one of its main causes in ocular disturbance, and can frequently be benefitted by attention that is directed toward the visual apparatus." Myles Standish, in the same system, after mentioning causes which may precipitate an attack of migraine, says: "Last, but not least, ocular fatigue. There would seem to be no reason why attacks of migraine should not be precipitated by the same ocular strains that precipitate epileptic convulsions, but my experience leads me to think that refractive strain is a much more fruitful cause of attacks of migraine than abnormalities of the ocular muscles." De Schweinitz in discussing heterophoria gives, among the general symptoms, headache as the prominent one and says: "It may be a typical migraine." He seems to think muscular unbalance a much more common cause of migraine than ametropia. George M. Gould attaches very little importance to the heterophorias, but believes that



it is due to ametropia, especially the low degrees, and goes far in advance of other writers on the subject, holding that migraine in all its forms is caused by eye-strain. He reviews the medical literature on the subject and claims that it, as well as the writings of famous literateurs who have suffered with the disease, points to eye-strain as the cause, if we but read the symptoms aright.

I have, from the beginning of my career as oculist, made it a point to examine very carefully the refraction and muscular balance or unbalance of every case of migraine that came under my observation, with a view of discovering what could be accomplished towards its relief by correcting all abnormalities that might exist. From my records I select four cases which have been under observation for a period of years, and give them as illustrative cases to show that many cases of migraine may be cured or relieved by properly correcting the ametropia.

CASE I. A physician, age 35, consulted me in April, 1896, giving the following history: Father suffered from migraine until the age of fifty, when the attacks ceased. Mother has always suffered from it, and still does at the age of eighty. At about the age of ten he began having attacks of sick headache, at intervals of a week or two and lasting three or four days. The pain was more severe in the left temple, but involved the right, as well as the occiput. Nausea and vomiting always occurred.

Being a constant sufferer, and unable to pursue his studies with any comfort or satisfaction, and finding no relief from internal medication, he consulted an oculist in 1885, who prescribed a weak spherical, for reading, without benefit. In 1889 he consulted another oculist who prescribed —.75 D.C. ax. 105° for O.D. and —.25 D.C. ax. 75° for O.S., for constant use. These he wore from that time until he consulted me, with the result that he was able to use his eyes as much as he desired; his headaches occurred at intervals of months instead of weeks, and were much less severe. I found no change in his refraction, and advised him to continue wearing the same glasses.

V.O.D. =  $\frac{17}{50}$ , w. correction =  $\frac{17}{15}$

V.O.S. =  $\frac{17}{20}$ , w. correction =  $\frac{17}{10}$

In speaking to him a few days ago, he told me that he was still wearing the same glasses and that he had sick headache only occasionally.

CASE II. Mrs. X., age 57, consulted me Nov. 23, 1897, giving a history as follows: Began having a headache at the age of ten. Using eyes for sewing or study would bring on an attack of pains in forehead and eyes, with nausea and vomiting, usually lasting one day. At the age of forty-eight she began wearing glasses, and since then has had very little headache. She consulted me on account of a chronic purulent dacryocystitis on left side, of five years' standing, and a chronic catarrhal conjunctivitis of twelve years' duration, which became aggravated if she used her eyes for near work. No headache nor pain in eyes. Had been wearing the following glasses: O.D. +.75 D.S.  $\ominus$  +.25 D.C. ax. 90°, O.S. +.25 D.S.  $\ominus$  +.25 D.C. ax. 135° with +3. D.S. added for reading.

$$\text{V.O.D.} = \frac{17}{20} - , \text{ w. correction} = \frac{17}{15}$$

$$\text{V.O.S.} = \frac{17}{50} + , \text{ w. correction} = \frac{17}{15}$$

A test of the extrinsic muscles showed, adduction 18, abduction 13. Stevens phorometer showed an exophoria ranging from 5¼° to 7°.

Under treatment the dacryocystitis and the conjunctivitis improved, but every time she attempted to read for even a few minutes her left eye would get red and water. I then combined a 2½° prism, base in, with the glasses she had been wearing, which gave her considerable relief; but after wearing them for several years and still not being able to use her left eye as much as she wished, without its getting red, I decided to tenotomize her left external rectus, repeated tests having convinced me that it was the muscle at fault. This was done in February, 1900. Immediately after the operation the phorometer showed an exophoria of ½°. Since that time she has occasional attacks of acute catarrhal conjunctivitis, but she can use her eyes as much as she cares to, without its producing the old symptoms in her left eye.

This case would seem to show that the ametropia and not the heterophoria was causing the migraine, inasmuch as it was relieved as soon as she began wearing the proper glasses.

CASE III. Miss X, age 32, a daughter of Case II, consulted me in June, 1898, giving this history: Began having

migraine at the age of seventeen. Using her eyes at near work always brought on an attack lasting from one-half to two days. Began wearing glasses at the age of nineteen, which gave her complete relief, provided she did not use her eyes too much. Six weeks before consulting me she had left off her glasses for an hour and a half which brought on a severe headache, since which time she had not been comfortable. Was wearing O.D.+1.12 D.S., O.S.+1.12 D.C. ax. 120°.

V.O.D.= $\frac{17}{15}$ , w.+1.25 D.S.  $\bigcirc$ + .75 D.C. ax. 90°= $\frac{17}{15}$

V.O.S.= $\frac{17}{40}$ , w.+ .75 D.S.  $\bigcirc$ +1.50 D.C. ax. 110°= $\frac{17}{15}$

The muscle tests showed, adduction 31, abduction 9. The phorometer indicated orthophoria. I gave her the full correction, since which she has been able to use her eyes with comfort as much as she cares to, and has no sick headaches.

CASE IV. Miss X, age 22, a daughter of Case II, came to me April 20, 1899, giving a history as follows: Began having headache at the age of eight. At the age of fourteen the attacks became more frequent, and she has been a martyr to them ever since, always being worse in the spring. The pain was always on right side in one attack and on left side in next, alternating with absolute regularity. Distant and near vision good; could use her eyes as much as she liked, the use of them apparently having nothing to do with her headaches. Inasmuch as her eyes never ached, it did not occur to any of her physicians that they might be at the bottom of her trouble. She consulted one good physician after another who prescribed all sorts of medicines, climate, etc., without benefit. Her attacks of migraine were coming more and more frequently, practically making an invalid of her, when in despair she consulted me, thinking that perhaps her eyes might be the cause of her suffering, in spite of the fact that they never ached. I found

V.O.D.= $\frac{17}{15}$ +, w.+ .75 D.S.  $\bigcirc$ + .50 D.C. ax. 90°= $\frac{17}{15}$

V.O.S.= $\frac{17}{15}$ , w.+ .75 D.S.  $\bigcirc$ + .50 D.C. ax. 90°= $\frac{17}{15}$

Adduction 27, abduction 2. Phorometer showed  $1\frac{1}{2}^\circ$  esophoria. A full correction was ordered for constant use, which relieved her headache completely for fourteen months, when they returned. She again consulted me, and I found



V.O.D. w.+1.25 D.S.= $\frac{17}{15}$

V.O.S. w.+ .75 D.S.  $\bigcirc$  +.50 D.C. ax.  $90^\circ = \frac{17}{15}$

The refraction in O.S. being unchanged.

I gave her the full correction for O.D., which again completely relieved her until November, 1901, when she again reported having had occasional headaches for the last month. Her ametropia at this time seemed to require

O.D.+ 1. D.S.  $\bigcirc$  +.25 D.C. ax.  $15^\circ$  giving  $\frac{19}{15}$  vision

O.S. +.62 D.S.  $\bigcirc$  +.37 D.C. ax.  $90^\circ$  “  $\frac{19}{15}$  “

This correction again relieved her until January, 1904, when she reported having had several severe attacks at intervals of only a few days. Homatropine, which had been quite satisfactory in the past, was again used. The test indicated that the ametropia had not changed. Feeling that there must be some change that the homatropine had failed to indicate, I prescribed a 1 per cent. sol. of atropine to be used three times daily for three days. I then found

O.D.+1.25 D.S.  $\bigcirc$  +.50 D.C. ax.  $15^\circ = \frac{17}{15}$

O.S. +1.25 D.S.  $\bigcirc$  +.25 D.C. ax.  $165^\circ = \frac{17}{15}$

The full correction was ordered, which has given complete relief.

We thus have one case in which the careful correction of the ametropia gave decided relief, but did not cure. One case in which presbyopia with the correction of the ametropia gave entire relief. One case in which inability to use the eyes on account of pain in them, as well as the fact that they brought on the migraine, was relieved by correcting the ametropia. And one case in which the eyes never ached, where the migraine was completely relieved by correcting the ametropia, but where it promptly returned on the slightest change of the refraction.

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ERRATA.—In the article “Bullous Keratitis,” June number, 1904, page 171, read, Descemet’s membrane was denuded of its endothelium, instead of “epithelium” as printed.

## THE DETERIORATION OF VISION DURING SCHOOL LIFE.\*

By ETTIE SAYER, M.B., B.S.,

Assistant Medical Officer, Board of Education, London County Council.

THERE are nearly a million children attending the Board schools in London and such large numbers of these had obvious defects of vision that two years ago the Board decided thoroughly to investigate the condition of the children's eyesight. The children in our schools are divided into three departments:

1. Boys between 8 and 14 years of age.
2. Girls " 8 " 14 " " "
3. Infants " 4 " 8 of both sexes.

The work was carried out on purely scientific principles. A child was taken to have normal vision who distinguished objects subtending an angle of one minute, this being determined by the ability to recognize letters 9 millimetres square from a distance of six metres. Only children in the boys' and girls' departments were to be included in the test, and it may be briefly stated that 10 per cent. of boys and 11 per cent. of girls on an average throughout school life were found to have such serious defects of vision that their visual acuity was  $\frac{6}{18}$  or worse.

In addition to this I last summer very carefully tested the visual acuity of 1,864 infants between 6 and 8 years old, 100 of each sex for every three months increase of age. With children younger than this it was impossible to get trustworthy results.

As a large number of these infants did not yet know their letters, the letter E was made in various sizes and positions to correspond with Snellen's test types,  $\frac{6}{6}$ ,  $\frac{6}{24}$ , etc. The infant was placed six metres away, given a large E to hold, and told to turn it in the same direction as the one indicated—upwards, downwards, backwards or forwards—and rewarded with a sweet every time it got it the right way upon the first trial.

The results were very surprising, for it was found that at exactly six years of age 81 per cent. could read  $\frac{6}{6}$  with each

\* Paper read at the International Congress of School Hygiene at Nuremberg, 1904.

eye separately, and only 3.5 per cent. had such serious defects that they could only see  $\frac{6}{18}$ . The defects, however, steadily increased with every quarter of a year of age, until at 8 years old only 77 per cent. could see  $\frac{6}{6}$  with each eye, whilst 8 per cent. had serious defects.

These results were so contrary to statistics published hitherto that Dr. Kerr, the Principal Medical Officer to the Board, suggested submitting a large number to re-examination by the ordinary methods, and he and I together went over them. It was now found that when tested with the ordinary Snellen's test types a much larger number apparently had bad vision, but with this method of E the vision of infants was as is stated above.

The reason for this difference I shall endeavor to prove is simply that the higher brain centers are as yet undeveloped, and that the methods hitherto employed for testing the eyesight of very young children have been at fault. Defective visual acuity, in short, has been confused with want of perception by the brain, and the serious defects among children aged 6 years are only 3 per cent., a percentage which steadily increases until at 11 years old it reaches 11 per cent., and then gets somewhat better again.

This great deterioration is extremely serious. The eye being the chief inlet for knowledge it means at least 25,000 children are being seriously handicapped in all their pursuits. The shortsighted child cannot see the blackboard, a ball in play comes suddenly out of nowhere, a human face is an expressionless patch, and, never seeing its expression, he grows up without any power of estimating character from observation. As he does not care to look at what he cannot see his chief delight is to pore over a book. This, as I shall show, only increases his defect of vision, and, moreover, since he sits all doubled up with his head bent low over the book, the movements of respiration are hampered, which predisposes him in after life to organic diseases of the heart and lungs.

Therefore, it is of the utmost importance to discover what is the cause of the deterioration of vision, and to prevent it or cure it as the case may be.

*Normal Changes in the Eye from Birth to Old Age.*—A normal eye is one in which the focal length of the lens at rest

is equal to the axial length of the eyeball posterior to the lens, and in which the retina is of normal structure and sensitiveness to receive the disturbances and vibrations of ether known as light. Given these conditions a perfect image is thrown on the retina from every object which is placed in front of it at a sufficient distance for rays of light from it to arrive on the front of the eye practically parallel. In order that correct images of near objects should be accurately focussed onto the retina the normal eye possesses three faculties: (1) Adaptation, (2) accommodation, (3) convergence. The intelligent appreciation and interpretation of things visible, however, is a function of the very highest order, necessitating not only that the eye should be perfect as an optical instrument, but in addition that the higher visual centers situated in the occipital cerebral cortex and elsewhere in the brain should be fully developed and in good physiological working order.

The changes which occur in the eye itself during life are chiefly concerned with accommodation which depends partly on muscular contraction and partly on the elasticity of the lens. If, therefore, that elasticity is diminished (as it is in old age) beyond a certain point, accommodation will fail. The eyeball in infancy is short or flat and hypermetropic, but the lens is relatively larger, more hemispherical, and much more elastic than it is in after life; therefore its amplitude of accommodation is greatest at birth—so much so that the shortness of the eyeball is then more than compensated. By about 11 years of age the eyeball has grown and elongated so as to be emmetropic—that is to say, the focal length of the lens equals the length of the posterior chamber. Throughout life the elastic tissue in the whole of the body gradually lessens, and the elastic tissue in the coats of the eyeball shrinks, causing it to become somewhat flatter again. The lens itself loses its elasticity most markedly and steadily, and with this loss the amplitude of accommodation gradually diminishes until by the age of 50 the normal eye is incapable of accommodating for objects nearer than 10 inches.

*Changes during Life in the Visual Centers of the Brain.*

—The dissociation between the reception of visual impressions by the eye and the perception of them by the brain is a

matter of everyday experience. Who is there amongst us that has not at some time or other pulled out a watch, looked at it, and after replacing it in the pocket realized that the time had not been noticed? There is a distinct remembrance of the facepiece having been impressed upon the retina, but owing to the ultimate visual cerebral centers or the passages to these centers having been obstructed by thoughts or cerebration on other subjects the details of the facepiece of the watch passed unnoticed, and failed to arouse any consciousness of their significance.

Somnambulism is another familiar example of the cutting off of these higher from the lower centers. Here all actions are performed automatically, visual impressions being received and acted upon without the concurrence of conscious thought. The young infant, whose higher centers are only partially developed, will be unable to explain which letter is D and which is G and to give a name to them, but yet the eye may be capable of receiving a perfectly accurate visual impression, and by exercising the faculty of mimicry (which is developed extremely early and is present in several of the lower animals), it may copy the position of an E held up to it every time it receives the impression; especially will it do this if its sympathies are engaged by its being rewarded every time it gets the position right on the first trial.

The progress of the development of these higher centers is best watched by noticing the development of the fusion faculty—that psychical blending of the two sets of visual impressions when the two eyes act together as a pair which produces binocular vision. A newborn child fixes a light from a mirror flashed into its eye only momentarily, therefore the fixation must be purely reflex. In two or three weeks it fixes it for two or three seconds, but does not converge accurately. It is only by the fifth or sixth month that experiments with prisms show a distinct desire for binocular vision.

During the first few months want of control by the higher centers resulting in muscular incoördination causes the movements of the eyes to be uncertain, the slightest disturbance, even a flatulence, causing one or other eye to deviate. But by the end of the first year the desire for binocular vision is so strong that unless there is some insuperable obstacle the



vision of one eye will be suppressed in preference to enduring diplopia. Experiments with Worth's amblyoscope prove that this fusion faculty is not fully developed normally until the sixth or seventh year. Therefore the higher centers cannot be developed until then.

*The Cause of the Rapid Deterioration of Vision During School Life.*—At 6 years of age 3 per cent. have seriously bad vision, and 88 per cent. can see  $\frac{6}{6}$  with each eye; at 11 years of age 11 per cent. have seriously bad vision, and only 58 per cent. see  $\frac{6}{6}$  with each eye. The rest have slight defects.

In farming districts, where vocations demand no accurate vision, no necessity for care of the eyes arises; but if children from these communities are sent to school the problem of how to prevent injury to the eyes soon obtrudes itself by the appearance of headache, pain in the eyes, impaired vision, undue sensitiveness to light, and increased lacrimation. Examination reveals tonic cramp of accommodation and hyperæmia of the optic nerve, choroid and retina. These symptoms subside under rest and recur when work is resumed.

If accommodation and convergence are not sufficient to overcome the hypermetropia of infancy, the child brings its eyes very low down onto its work, as the larger retinal image and increased illumination more than compensate for the less accurate definition and the muscles of accommodation are strained to the utmost. A sustained and strenuous effort is demanded of all the ocular muscles. The continuous contraction of the internal recti renders them liable to overpower their antagonists and become a factor in the causation of squint. More important is the pull which the muscles of accommodation exert upon their points of insertion; they distort the eyeball and tend to lengthen it antero-posteriorly. This elongation produces myopia, which when caused in this way is more likely to attain a high degree and become ultimately perilous than when it existed as an original proportion. All recorded cases which have passed from hypermetropia to myopia have done so by astigmatism, no one having been emmetropic at any stage.

The small or hypermetropic eye is always found in animals, in infants, in uncivilized races, and in those who pass their lives in employments of the grosser sort, whilst myopia

is almost unknown under these conditions of life. It is with the greatest rarity that the adult Indian outgrows his hypermetropia. Unfortunately I did not take statistics, but, when doing a large practice amongst Kaffirs, I was never once consulted about short sight, or even asthenopia.

Myopia results only under the stress of those employments which require the protracted use of the eyes for near work. Half a century ago Professor Donders laid down the law that "the myopic eye is a diseased eye." Myopia increases steadily with the progress of pupils in school; it is the characteristic of the student or of the artisan who began accurate near work early in life. Among the compositors of Breslau, Cohn found that no less than 51 per cent. had myopia. Risley found the same great percentage among the compositors and brass-founders of Philadelphia. Among the students in various German universities Cohn found 22 per cent. to 28 per cent. were myopes. Erisman showed that among 1,245 myopic children in St. Petersburg, only 5 per cent. were free from pathological conditions of the choroid. Horner kept 1,875 myopes under observation, and no less than 34 per cent. developed the greatest complications later on, such as hæmorrhages into, or detachment of, the retina, optic atrophy, etc.

*Indications for Treatment.*—A child compelled to struggle with a sign is negligent of the thing signified. Its nervous energies cannot be directed into two channels at the same time. Therefore if its senses are defective it cannot take the full advantage of its education.

The public duty of providing an education which is to be the preparation for the child's afterlife should include the duty of ascertaining whether that education is likely to inflict serious and permanent physical injury upon it.

It is only reasonable to expect some degree of physical deterioration will result from depriving the child of its freedom and confining it to lessons, and since the eye is the organ upon which the greatest strain falls, it will be the eye which is most likely to suffer.

All eyes should be tested immediately on the child beginning its education: (1) As to visual acuity; (2) as to rapidity of perception; (3) as to color blindness.

All children whose visual acuity is subnormal should be atropined at once, and if there is any excessive degree of hypermetropia simple *plus* lenses should be worn until, it is outgrown. Spectacles for them should be regarded not as an evil, but as a temporary protection against the evil of defective vision.

With regard to commencing myopia, it is very questionable whether the child should be allowed to continue its studies at all. Certainly no more near work should be done than is absolutely necessary. A special curriculum should be devised for these children which will fit them for a genial career in after life and not involve any strain on the eyes.

Children with errors of refraction always get as near to their work as possible. The hypermetrope, to get a larger image; the myope, to get any image at all—spectacles may do away with the necessity, but the objectionable habit may be formed. The thing to do is to use a face rest which will keep the face at least 10 inches off the book.

Squint occurs when there is an error of refraction combined with a defect in the "fusion faculty." I have found it present in 4.5 per cent. of children under 8 years of age. It is of the utmost importance to cure squint with the greatest speed as early as possible. Before the child is 6 years old it is easy to do so by correcting the refraction and training the fusion faculty with Worth's amblyoscope. After this it is a matter of considerable difficulty. Only 30 per cent. of squints can be cured by glasses alone, the rest requiring operative treatment, etc. Squinting eyes become amblyopic from continued suppression of vision to prevent diplopia.

Color sense is as often untrained as absent, therefore attempts should be made to develop it.

*The Type of Children's Books.*—It has already been most ably pointed out by Dr. Kerr that pens, pencils, paper, etc., are utterly out of place in an infant's school. They are much too minute. Infants should only be allowed to chalk on cardboard. Reading should be learned from the blackboard. Every child in a 6-year-old class should be able to print its name in 6-inch letters on the blackboard with a free arm. Fine writing should be absolutely forbidden. In order to be distinguished, the letters must subtend an angle

of at least 5 minutes, and the lines of which they are composed at least 1 minute. This requires the utmost endeavor of an emmetrope, being the limit of normal acuity of vision. Therefore it is obvious that a hypermetropic infant should not be set to small print. At no time during school life should type smaller than pica be used.

Parents among the lower orders are so astoundingly ignorant with regard to the care of their children's eyesight, that it is impossible to rely on them to get defects attended to. They invariably imagine the child will in time "grow out of" any defect. Glasses they regard as a disfigurement worse than sore eyes, or else as an adornment for Sundays. Many children also run grave risks by their parents taking them to sight-testing establishments, certified opticians, etc., who are rightly prevented by law from using atropine, and who therefore prescribe wrong glasses.

#### CONCLUSION.

No child's eyes were intended by Nature to undergo the strain of accommodating over lessons for six or seven hours every day of their lives between 4 to 14 years of age.

If, however, compulsory education enforces it, it becomes the duty of the Board of Education annually to separate those 20,000 children or more whose vision is so defective that they are unfit physically, to devise for them a specially modified curriculum, and to provide them with glasses if their parents are too poor or too ignorant to do so. This is the type of case, common enough, I am referring to:

Boy, aged 13; rest of his class I examined yesterday, but he was absent, as he stopped at home to help his mother (who is a widow with five younger children) do the washing. He suffers from headaches, squints, sees double, and has blepharitis. His class is at present doing algebra, a subject in which he makes no progress, as sometimes the figures are all a blur and at others they jump about.

Such children are as unfit to become students as cripples are to become soldiers.

There is plenty of skilled manual work to be done by the class which is so poor that the public has to pay for their education, and they should be taught from their earliest infancy to regard this as their special lot in life.

For if the child with defective vision has its weak eyes overstrained, not only does he as an individual suffer, but also future generations, to whom the welfare of the nation is to be entrusted, it being a well-proved fact that there is no defect more likely to be transmitted from parent to child than that of defective eyesight.

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### ON SYMPATHETIC AMBLYOPIA.\*

BY PROF. NUEL,

LIÈGE.

Translated by Adolf Alt, M.D.

AT this period the Academy is especially concerned in traumatic neuroses. \* \* It is therefore not out of the way for me to speak to you about an eye affection which is kin to the traumatic neuroses. I mean the sympathetic amblyopia, the clinical features of which I have described in 1897.† I may be the more allowed to recur to this affection as it is far from being admitted by all authors.

Ocular and visual troubles make quite frequently an important part of the symptoms of traumatic neuroses, partly as such and partly because their careful study is one of the best means to control the patient's veracity.

The visual symptoms in a traumatic neurosis consist chiefly of a marked diminution of the visual acuity, in a moderate diminution of the visual field and in the rapid fatigue of the eye. Moreover, they are bilateral and symmetrical.

The symptoms of the sympathetic amblyopia, as we shall see, consist nearly solely of those of the traumatic neuroses. It attacks an eye whose fellow has been lost by an injury; we might, therefore, look upon it as a traumatic neurosis.

On the other hand the sympathetic amblyopia shows a certain relationship with the true sympathetic ophthalmia.

When we described this affection we especially dwelled upon this likeness. Our first communication was based on the prolonged observation of sixteen cases. We still observe some of these cases. Since then we have seen another half dozen of such cases, four of which we have been able to

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\* Bulletin de l'académie royale de Médecine de Belgique.

† De l'amblyopie sympathétique, Arch. d'opht., March, 1897.



follow up very closely. Thus we are enabled to control our former work and revise it if necessary.

We said, *the disease is sympathetic*, in the sense that one eye becomes diseased *because* its fellow has been injured.

*Period of the beginning of the affection.*—The true sympathetic ophthalmia begins most frequently one or two months after the injury to the sympathizing eye. Our amblyopia appears very frequently at a later date.

*Initial symptoms.*—At first there is amblyopia without any ophthalmic symptoms. Usually the patient for months complains of momentary obscurations of vision, which come on especially when he wants to use his eyes. The visual acuity is slightly diminished and, perhaps, even now a small narrowing of the visual field may be found. Sometimes there is slight photophobia. The patient may also complain of photopsiæ, even with pain. Most frequently there are vague pains in the forehead and temples.

After a prolonged rest these symptoms may disappear. Yet, a cure takes a long time, and the affection is of a serious nature.

In the presence of such symptoms, especially when the visual field is not much narrowed, the physician can not help suspecting simulation, especially if it concerns a working man who is insured against accidents. We may add that the final course of the disease allows this suspicion to linger for a long time in the mind of the physician.

*Symptoms of the confirmed affection.*—Meanwhile, after many alternating improvements and relapses the affections become more grave. The visual acuity falls to  $\frac{1}{5}$ ,  $\frac{1}{12}$  and less, in exceptional cases so low that fingers can hardly be counted at 1 metre. Then the visual field is always notably circularly reduced\* to  $15^\circ$  or even  $10^\circ$ , and the color sense is defective also.

Meanwhile, the ophthalmoscopic appearance of the fundus is normal. Later on, especially when the amblyopia attains a marked degree, we see sometimes: (a) a slight papillary trouble (neuritis?); (b) a distinct pallor of the temporal half of the papilla, almost like that due to alcohol and tobacco poisoning; (c) rarely a certain degree of perivasculitis in the

\* We do not insist here on the effective precautions to prevent an eventual simulation of a reduced visual field.

papilla; (d) sometimes a slight dilatation of the retinal veins. In the beginning, the pupillary reaction to light is usually normal. Later on, the pupil is slightly dilated and reacts sluggishly.

Thus the affection may go on for months and years with alternating improvements and aggravations. We have in rare cases seen it disappear altogether, not even leaving a defect in vision behind. After years the condition may become stationary with a more or less pronounced amblyopia. We have never seen total blindness resulting from it.

We have lately seen the cases 2, 5 and 6 of our former report of 1897. These patients are virtually unchanged.

As new observations, we will relate the following ones taken from a half dozen which we have encountered since 1897. [Here follow four typical cases.]

These cases absolutely confirm the clinical picture which we have given in 1897 of the sympathetic amblyopia. The first one is one in which the injured eye was not opened. The third is an example of a great and definite reduction in visual acuity. Finally, the fourth is an example of a cure with absolute restoration of visual acuity.

*Acute forms of sympathetic amblyopia.*—A moderate degree of photophobia is often seen in the commoner forms of this disease, as we have described them before. Just now we are observing with Dr. Rutten a case which, perhaps, belongs to the category of diseases which we have seen, but which is peculiar on account of the intense photophobia and persistent photopsiæ. It seems that we have here a more acute form of sympathetic amblyopia.

W. P., miner, on Dec. 26th, 1902, had one eye injured by coal dust. A purulent keratitis resulted in keratomalacia and loss of nearly the whole of the cornea. Panophthalmitis threatened. The enucleation of this eye resulted in prolonged cessation of all pathologic symptoms. March 20th, suddenly grave symptoms appeared. Severe amblyopia; fingers at 1½ metres only. Violent photophobia and painful photopsiæ with headache. I saw the patient for the first time at this stage. In spite of the photophobia I succeeded with an ophthalmoscopic examination; the eye was emmetropic and the fundus normal. The visual field was reduced, especially outward and downward. By means of rest in the dark, smoked

glasses and bromide of potassium, the excitement of the eye cooled down, but very slowly. The visual acuity rose in three months to  $\frac{5}{30}$ . Since then the patient could do some light surface work. A month later complete relapse. He had to stop all work. Till to-day these improvements and relapses have alternated. Just now he has a very violent relapse. The photophobia forbids an ophthalmoscopic examination, even with cocaine instillations. Photopsiæ are constant; the headache is very severe, with remissions. The visual field seems intact; of course, a not too excessive contracted field might remain unnoticed on account of the extreme photophobia with blepharospasm. The visual acuity is only  $\frac{1}{12}$  of normal.

This affection is very like the common forms of sympathetic amblyopia, except that both photophobia and photopsiæ are of extreme severity. We might, therefore, consider it as an acute form of sympathetic amblyopia. On the other hand, by the violence of its symptoms and the nervous excitement it comes rather near certain forms of traumatic neurosis. We prefer not to give a final opinion. Whatever their cause, these are exceptional cases, and infinitely more rare than the cases previously described.

Compared with true sympathetic ophthalmia, this amblyopia develops much later, mostly months, sometimes a year after the injury.

*Condition of the sympathizing eye.*—In most cases, if it has not been enucleated, the injured eye shows no symptoms of irritation; it is mostly a "quiet" eye. Some were atrophic, others, although seeing a little, showed a grave affection of the optic nerve (neuritis). The visual field was reduced, and the eye was becoming amaurotic. Several of these eyes had never been perforated and showed no signs of infection. Some of these sympathizing eyes had recently been enucleated.

*Prognosis.*—In general the prognosis is benign, in that the affection does not lead to total blindness. Yet it is one of the gravest affections on account of its long duration with its many improvements and relapses. The working capacity of such patient is frequently forever annihilated. In the beginning the visual acuity may be comparatively good, but the obscurations produced by the application of the eyes prohibit serious work, and especially continued work. If

after a real improvement work is resumed, a relapse soon makes its appearance.

*Diagnosis.*—This is easy enough, but is not definite until after a prolonged observation of the patient. \* \* \* \*

*Treatment.*—The great remedy in these cases is rest and smoked glasses. Mercurial inunctions seem favorable. We do not believe that enucleation is of as fortunate results as it is in the classic sympathetic ophthalmia of the authors.

*Pathogenesis.*—The whole process and symptomatology of these cases speaks against microbic nature, while the sympathetic iridocyclitis and neuroretinitis have altogether the character of microbic diseases.

But is this really a sympathetic affection? Since now-a-days we can no longer doubt the microbic nature of sympathetic ophthalmia, there is a tendency to exclude this amblyopia from the class of sympathetic diseases. More than one author is tempted to reject it as a traumatic neurosis. It would then be a traumatic neurosis of one eye, provoked by an injury to its fellow.

The traumatic neurosis has a broad back. Since its real nature is unknown, we enter under this head a multitude of heterogeneous affections, just as every diminution of vision without known cause is called an amblyopia. \* \* \* \* The fact that this disease is counted among the two clinical categories as undetermined, as the "traumatic neurosis" and the "amblyopias," shows us that we know nothing as regards its pathogenesis and pathological physiology.

The traumatic neurosis, independent of its traumatic origin, is generally characterized, (1) by there being no gross anatomical lesion, and (2) by a certain diffusion of symptoms, that is, that the localizations vary in the same individual.

In this direction our affection is distinct from the neuroses. There is, in fact, a fixation of symptoms, and, then, in the cases of old lesions we find little pronounced, it is true, but nevertheless quite real changes in the optic papilla. Therefore, the affection belongs rather to the amblyopias.

We have still to prove the sympathetic character. Those who most protest against this adjective, do so because of a certain theory which they form for themselves concerning sympathetic affections in general. But this is a rather illogical procedure. An affection is called sympathetic because



the fellow eye has been injured and when the injury has not at the same time exerted any influence on the eye secondarily diseased. What goes beyond this definition is hypothetical. If we apply this criterion to our affection, it surely deserves the name of "sympathetic." Yet, we acknowledge on the whole that at present this question is as yet not definitely settled.

In our ignorance of the pathogenesis of sympathetic amblyopia we have risked the following hypothesis, or, if it pleases better, the following theory.

It is a frequent observation that the sympathizing eye suffers to a larger or smaller degree from a neuritis caused by a hyperplasia of the interstitial tissues (neuroglia, etc.) of the optic nerve of the sympathizing eye, which hyperplasia leads to sclerosis of the nerve.\* This sclerosis in most cases does not reach beyond the optic foramen. But could it not under certain circumstances reach the chiasma and produce atrophy of the optic nerve fibers? In the chiasma the fibers of the two nerves are most intimately interwoven. And, if the sclerosis of the nerve of the injured eye should reach it, it must compress the fibers of the fellow eye and injure them more or less. It will be conceded that the general progress and the symptoms of the disease agree perfectly with this hypothesis.

But let us stop on the road of suppositions, as plausible as they may seem. Our principal object is to have sketched the clinical appearance and reality of a grave affection of vision which interests most seriously the laborer as well as the responsibility of the employer in case of an accident during work. Whatever may be the nature of the pathological process, which further investigation will surely make clear, we hope to have established, against all protests, the reality of the clinical entity to which we have given the name of sympathetic amblyopia, and the practical importance of which is evident. And this is true, even if later our hypothesis of the pathogenesis of the affection should prove erroneous, even if it should be found that this affection must be held separate from the sympathetic ophthalmias and be counted one of the traumatic neuroses.

\* See our paper entitled "On the neuroglia in optic neuritis," *Bull. de l'académie de médecine de Belgique*, v. xlv, 1900.



## MEDICAL SOCIETIES.

### OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.\*

JOHN TWEEDY, F.R.C.S., President, in the Chair.

*Thursday, June 9th, 1904.*

#### PRIMARY OPTIC ATROPHY DUE TO LEAD.

Mr. SIMEON SNELL (Sheffield) related a case occurring in a boy aged 16. The sight had commenced to fail for rather more than a year before the patient was first seen in October, 1903, and had rapidly become worse during the past three months. The vision was: right,  $\frac{2}{60}$ ; and left,  $\frac{1}{60}$ ; both optic papillæ were white and atrophic but did not suggest preceding neuritis. The family and personal history were good. For two or three years the boy had worked as a file cutter, which exposed him to the influence of lead, and he had the ordinary symptoms of lead poisoning. The optic atrophy was, in Mr. Snell's opinion, due to this cause, and all other causes had been eliminated. Mr. Snell, after mentioning a similar case, stated that among file cutters he had observed several instances in which the optic nerves were affected either directly by the lead or in association with kidney or brain disease.

#### OPTIC ATROPHY AFTER POST-PARTUM HÆMORRHAGE.

Mr. SNELL related the following case, in a lady, aged 28, who was seen last February a few days after recovery from puerperal mania. Both papillæ were atrophied but there was no evidence of past neuritis. There was no perception of light, and the pupils were dilated and motionless. On October 3rd, 1903, she was delivered of her first child at full term, but an hour afterwards she had considerable hæmorrhage, and although the amount lost was not very great yet she had never seemed to have really recovered from it. It was doubtful when the failure of sight had commenced, but it had been suspected for some time. She had probably not

\*British Medical Journal.

seen at all for two months. There was no albumen nor throughout the pregnancy anything to suggest kidney disease. Mr. Snell referred to a previous case he had seen in which the sight was greatly affected by the same cause, and he also alluded to cases collected by Chevallereau.

#### OPTIC GLIOMA.

The following case was narrated by Mr. SNELL: In a baby, aged 1 year and 10 months, first seen on April 1st, 1897, glioma of the retina was diagnosed. One eye was excised on April 7th, and the tumor found to be confined to the globe, but was rather large. On January 7th, 1899, the child was again seen with a similar condition in the other eye. This was excised on March 1st, and at the present time the child was alive and well. Mr. Snell referred to the small number of cases in which both eyes had been removed for glioma without a fatal result. Other cases related were as follow: A girl, aged 4½ months, was sent to Mr. Snell on December 18th, 1903, with glioma of the right eye; the eye was removed on December 22nd, and the growth found to be confined to the globe, which it nearly filled; there was no recurrence. Another member of the same family had suffered from glioma of both eyes, which had proved fatal, the parents having refused to allow the removal of both eyes; there was one other child between these two who was alive and healthy. Mr. Snell mentioned that until recently no instances had been published in which glioma had occurred in more than one member of the same family. Up to the present time three observers, besides himself, had recorded cases.

The President, Mr. Stanford Morton, and Mr. Devereux Marshall mentioned cases they had had of glioma bearing on the points brought forward by Mr. Snell.

#### ON MICROPHTHALMOS.

Mr. STEPHEN MAYOU gave a lantern demonstration of the anatomy of three cases of microphthalmos which he had examined.

#### CARD SPECIMENS.

Card specimens were shown by Dr. Louis Werner, Messrs. E. E. Henderson, G. W. Roll, E. W. Brewerton and Dr. D. Rayner Batten.

## AMERICAN OPHTHALMOLOGICAL SOCIETY.

*Program of the Fortieth Annual Meeting held on the 13th and 14th of July,  
at Atlantic City, N. J.*

1. Case of tuberculous tumor of the fundus-oculi. Dr. T. R. Pooley.
2. Intra-ocular tuberculosis with report of two cases. Dr. W. C. Posey.
3. An intra-ocular tumor containing hyaline cartilage. Dr. A. N. Alling.
4. A malignant tumor of the pars ciliaris retinae (neuroteratoma) of a nature hitherto unrecognized. Dr. F. H. Verhoeff (by invitation).
5. Sympathetic neuro-retinitis and serous uveitis following enucleation and implantation of glass globe. Removal of glass globe—resection of optic nerve—recovery. Dr. Rob't. Sattler.
6. A severe case of uveitis treated with radium. Dr. C. H. Williams.
7. Operations on the eyeball in the presence of an infected conjunctival sac. Dr. C. S. Bull.
8. The bacteriological diagnosis of the diphtheria bacillus, especially in conjunctivitis. Dr. Arnold Knapp.
9. Histological examinations in a case of ophthalmia nodosa. Drs. G. E. de Schweinitz and E. A. Shumway.
10. Report of a case of symmetrical enlargement of both lacrimal and parotid glands (Miculicz disease), associated with iritis, possibly tubercular in nature. Dr. C. W. Cutler.
11. A case of mind-blindness, unique in that the entire mesial surface of both occipital lobes and both optic radiations were preserved. Dr. W. A. Holden.
12. The blending of color impressions in the cerebral visual centers. Dr. C. H. Williams.
13. Report of a case of ophthalmoplegia externa totalis, complete recovery. Dr. W. E. Lambert.
14. Latent hypermetropia as a cause of eye-strain. Dr. L. S. Dixon.
15. Prism exercises — their indications and technique. Dr. A. Duane.
16. Test types for the reading distance. Dr. C. H. Williams.

17. The pathologic results of dextrocularity and sinistrocularity. Dr. G. M. Gould.

18. On the muscle of Horner and the operation for advancement of the caruncle. Dr. L. Howe.

19. A case of cystadenoma of the lachrymal gland (with photograph). Dr. Edw. Stieren.

20. Report of cases of glaucoma treated by sympathectomy. Dr. C. W. Cutler.

21. Retro-bulbar neuritis. Dr. J. A. Andrews.

22. Traumatic emphysema of the lids. Dr. H. D. Hansell.

23. On the act of winking—its photographic measurements (with demonstration), and diagnostic value in paresis of the motor-oculi. Dr. L. Howe.

24. Case of foreign body in the eye 13 years, producing irritation, localized by Dr. Sweet's method, and removed. Dr. W. B. Marple.

25. Unusual case of persistent pupillary membrane, with illustration. Dr. W. B. Marple.

26. Concerning certain non-traumatic perforations of the macula lutea. Dr. G. E. de Schweinitz.

27. Cataract extraction as performed after method of Angelucci of Palermo by fixation of superior rectus and without aid of assistant. Dr. R. Sattler.

28. The importance of testing the ocular muscle-balance for near as well as for distance. Dr. S. Theobald.

ABSTRACTS OF THE PAPERS ON THE PROGRAM SO FAR AS FURNISHED.

*Latent Hypermetropia as a cause of Eye-strain*, Dr. Dixon.

Eye-strain traced to ciliary muscle. Strain comes not from ordinary demands, but from constant action. This necessary on account of variations from emmetropia. Chiefly H. the only error that can elude instruments and methods in use. Can cause eye-strain even in small degree. Other factors, condition nervous system and amount of close work. Rest, the condition of safety. Original habit of sight prevents relaxation. This habit very obstinate and insidious. Error to suppose that good vision is final test of proper correction; that present relief is successful treatment; that the use of glasses for close work is the most important; that if vision is good, eye-strain is absent. Objections to full cor-

rection from patient's side and oculist's side. Safety and surety of the method.

*The Bacteriological Diagnosis of the Diphtheria Bacillus, Especially in Conjunctivitis, Dr. A. Knapp.*

Similarity of the diphtheria bacillus to closely-allied non-virulent organisms, such as xerosis bacillus. Differentiation only by animal experiment. A new method of differentiation by fermentation tests. Practical bearing in conjunctival diseases.

*Prism Exercises, their Indications and Technique, Dr. A. Duane.*

Method used by author in practicing with prisms, base out and base in. Supplementary convergence exercises. Three-fold use of prism exercises—(a) to combat muscular anomaly, (b) to modify the effect of an operation on the muscles, (c) to combat weakness or spasm of accommodation. Routine of practice in different kinds of exophoria and in esophoria. Necessity of frequent supervision and modification of the practice.

*Case of Tuberculous Tumor of the Fundus Oculi, Dr. Pooley.*

In an eye enucleated for absolute glaucoma was found a tumor which proved to be of tuberculous origin, patient showing no other sign of tubercular disease. (Microscopic specimen and microscopic slides will be shown.)

*Certain Non-Traumatic Perforations of the Macula Lutea, Dr. de Schweinitz.*

Certain lesions of macula of elderly persons, mostly having arterio-sclerosis, are compared with the lesions known as traumatic perforations. Similar lesions following iritis are described, and etiology discussed—viz.: hæmorrhage, degeneration of ganglion cells, alterations in capillaries, etc.

*Case of Terato-Neuroma, Dr. Verhoeff.*

(1) From the unpigmented epithelium of the pars ciliaris retinæ there may rarely arise a tumor composed of embryonic elements which retain in a remarkable degree the arrangement of an embryonic retina in various stages of development.

(2) This tumor is malignant, but in how high a degree is uncertain.

(3) It is the only retinal tumor in which neuroglia has



been demonstrated to form an integral part, but nevertheless it is not a glioma.

(4) It is not to be confounded with the small benign epithelial growths that have sometimes been described as adenomata of the ciliary body.

(5) On account of its complexity of structure, its high differentiation, and its nervous origin, this tumor is properly designated as a terato-neuroma.

(6) The so-called glioma retinae, while differing from this tumor in many important respects, is yet of the same nature, in so far as both tumors are composed of embryonic retinal elements. The chief difference between the terato-neuroma of the pars ciliaris retinae, and the neuroma malignum of the pars optica retinae, lies in the fact that the latter represents throughout a less typical though higher retinal development than is anywhere reached by the former.

(To be illustrated with lantern slides.)

*Ophthalmia Nodosa*, Drs. Schweinitz and Shumway.

The patient was a negress, aged 15, whose conjunctival lesions appeared in August and who came under observation in September, when they presented on the bulbar conjunctiva of the right eye an appearance closely simulating in its clinical aspect tuberculosis of this membrane. An excised nodule implanted in the anterior chamber of a rabbit yielded negative results. Histologically the lesion was found to be due to the development of a number of tubercles as the result of the implantation in the conjunctiva of caterpillar hairs. The histological appearances of the condition prescribed are elaborately detailed and the literature of the subject briefly reviewed.

*On the Act of Winking—its Photographic Measurements, etc.*, Dr. Lucien Howe.

1. The method of making the measurements. (a) The head rest. (b) Source of light. (c) Camera.

4. The results shown in (a) closing of lids. (b) Time during which the lids are closed. (c) The opening of the lids.

3. The practical application of such data in cases (a) of incipient ptosis, (b) of imperfect action of other muscles supplied by the third nerve.

*On the Muscle of Horner and the Operation for Advancement of the Caruncle, Dr. L. Howe.*

1st, The discovery of the muscle by Dr. Horner of Philadelphia. 2d, Illustrations of the fibers passing to the puncta. 3d, Of the fibers to the caruncle. 4th, Function of these two fibers respectively. 5th, How the caruncular fibers cause retraction after tenotomy of the internal rectus. 6th, How that retraction can be obviated.

*Cystadenoma of the Lacrimal Gland, Dr. Stieren.*

Man, age 42. Swelling in outer upper portion right orbit of six months duration; marked ptosis. Enucleated a tumor measuring 32 mm. in length, 18 mm. greatest diameter, 12 mm. thickest portion. A large cavity in center of tumor containing yellow, gelatinous fluid; numerous smaller cavities throughout entire mass. Microscopical examination, typical adenoma. No recurrence three and a half months later.

Photograph and photomicrograph.

*A Congenital Intraocular Tumor Containing Cartilage, Dr. A. N. Alling.*

Presentation of the eye of a child four years old, containing tumor which apparently springs from the root of the iris and ciliary body. Principal mass lies in the vitreous chamber. Also extension into the anterior chamber. The tumor consists of small spindle and branching cells and some probably epithelial in character. There is an area of hyaline cartilage in the center.

*Traumatic Emphysema of the Lids, Dr. Hansell.*

Division of the subject into emphysema complicating fracture of the bones of the face, and emphysema without fracture.

Relative frequency of emphysema as compared with the published reports of cases of the affection. History of two new cases. Diagnosis by crepitation and treatment by pressure.

*Cataract Extraction after Method of Angelucci, Dr. Sattler.*

Brief account of personal observations and experience with Prof. Angelucci's (Palermo) method of extraction of cataract with and without iridectomy. Fixation of tendon of superior rectus muscle without aid of speculum or assistant throughout operation.

*A Case of Mind-Blindness, Dr. Holden.*

Man, 53. Post hemiplegia, dementia, aphasia and apraxia, disturbance of vision; at times apparent blindness. Pupils reacted promptly. Optic nerves normal. Autopsy ten months later. Middle cerebral artery plugged on either side and large area of softening in angular gyrus and neighboring parts in either hemisphere—parts supposed to include the higher cortical visual centers—optic nerves normal. Mesial surface of occipital lobes containing lower cortical visual centers and optic radiations were preserved. In case of mind-blindness previously reported, optic radiations have been affected. In this case the higher cortical visual centers alone were involved.

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THE AMERICAN ACADEMY OF OPHTHALMOLOGY  
AND OTO-LARYNGOLOGY.

*Ninth Annual Meeting, Denver, Col., August 24-25-26, 1904.*

PRELIMINARY PROGRAM.

OPHTHALMIC SECTION.

President's address—"Education for Ophthalmic Practice." Dr. Edward Jackson.

"Samuel Sharp: the First Surgeon to Make the Corneal Incision for Cataract Extraction with a Knife." Dr. Alvin A. Hubbell, Buffalo, N. Y.

"Central Superficial Choroiditis." Dr. T. B. Schneideman, Philadelphia.

"Metallic Foreign Bodies Within the Eyeball and Their Removal; Being a Clinical Account of Twenty-Six Operations of that Character." Dr. Geo. E. de Schweinitz, Philadelphia.

"Remarks Concerning Some Parts of the Technique of Mules' Operation, the Handling of Thiersch Grafts and the Advancement of the Recti Muscles." Dr. John E. Weeks, New York.

"Lantern Demonstration on Glioma and the Question of Rosettes." Dr. A. Alt, St. Louis, Mo.

"Further Experience and Treatment of Keratoconus." Dr. J. A. L. Bradfield, La Crosse, Wis.

"Removal from the Lacrimal Duct, a Style Which Had Been Buried Seven Years—Almost Fatal Hæmorrhage." Dr. J. C. Buckwalter, St. Louis, Mo.

"The Toxic Amblyopias, with Special Reference to Those Produced by Tobacco and Coffee." Dr. A. E. Bulson, jr., Ft. Wayne, Ind.

„The Use of Pure Nitric Acid in the Treatment of Diseases of the Eye." Dr. J. W. Bullard, Pawnee City, Neb.

"Cases of Retinitis Pigmentosa." Dr. J. Elliott Colburn, Chicago.

"Remarks on the Need for Thorough Aseptic and Antiseptic Work Prior to, During and After Cutting Operations on the Eyeball." Dr. B. E. Fryer, Kansas City, Mo.

"The Safest Operation for Senile Cataract." Dr. H. Gifford, Omaha, Neb.

"Some of the Accidents and Complications Met With in the Extraction of Cataract." Dr. D. W. Greene, Dayton, O.

"Changes in Refraction." Dr. O. A. Griffin, Ann Arbor, Mich.

"Notes on the Use of Dionin." Dr. Thos. C. Hood, Indianapolis, Ind.

"A Case of Unilateral Nystagmus, with Remarks on the Probable Cause." Dr. S. Kirkpatrick, Selma, Ala.

"Some Unique Cases of Amblyopia." Dr. T. W. Moore, Huntington, W. Va.

"Removal of Anterior Capsule and the Hypodermatic Use of Morphia in Simple Extraction." Dr. Eugene Smith, Detroit, Mich.

"A Criticism on the Use and Abuse of Lacrimal Probes." Dr. G. F. Suker, Chicago, Ill.

"How Shall we Educate Our Blind Children?" Dr. Casey A. Wood, Chicago, Ill.

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#### EDITORIAL NOTICE.

We wish to draw our readers' attention to *Ophthalmology* a new Quarterly Journal, owned, edited and published in the interests of the medical profession, the initial number of which will appear October 1, 1904. Yearly subscription \$5.00.

As its title indicates, it will be an ophthalmic periodical of about 250 pages, devoting about one-third of each issue to original essays, the balance to abstracts of original articles appearing in domestic and foreign literature, also complete book reviews.

H. V. Würdeman, M.D.

Nelson M. Black, M.D.,  
Assistant Editor.

Managing Editor and Publisher.  
Milwaukee, Wis.